

STS-106
FLIGHT READINESS REVIEW

August 29, 2000

Ground Operations

AGENDA	

- ➡ ● Integrated Operations J. Vevera
- Shuttle Engineering M. Madden
- NASA Managed Activities J. Spaulding
- Summary E. Adamek
D. King

PROCESSING DIFFERENCES

Presenter:

Jim Vevera

Organization/Date:

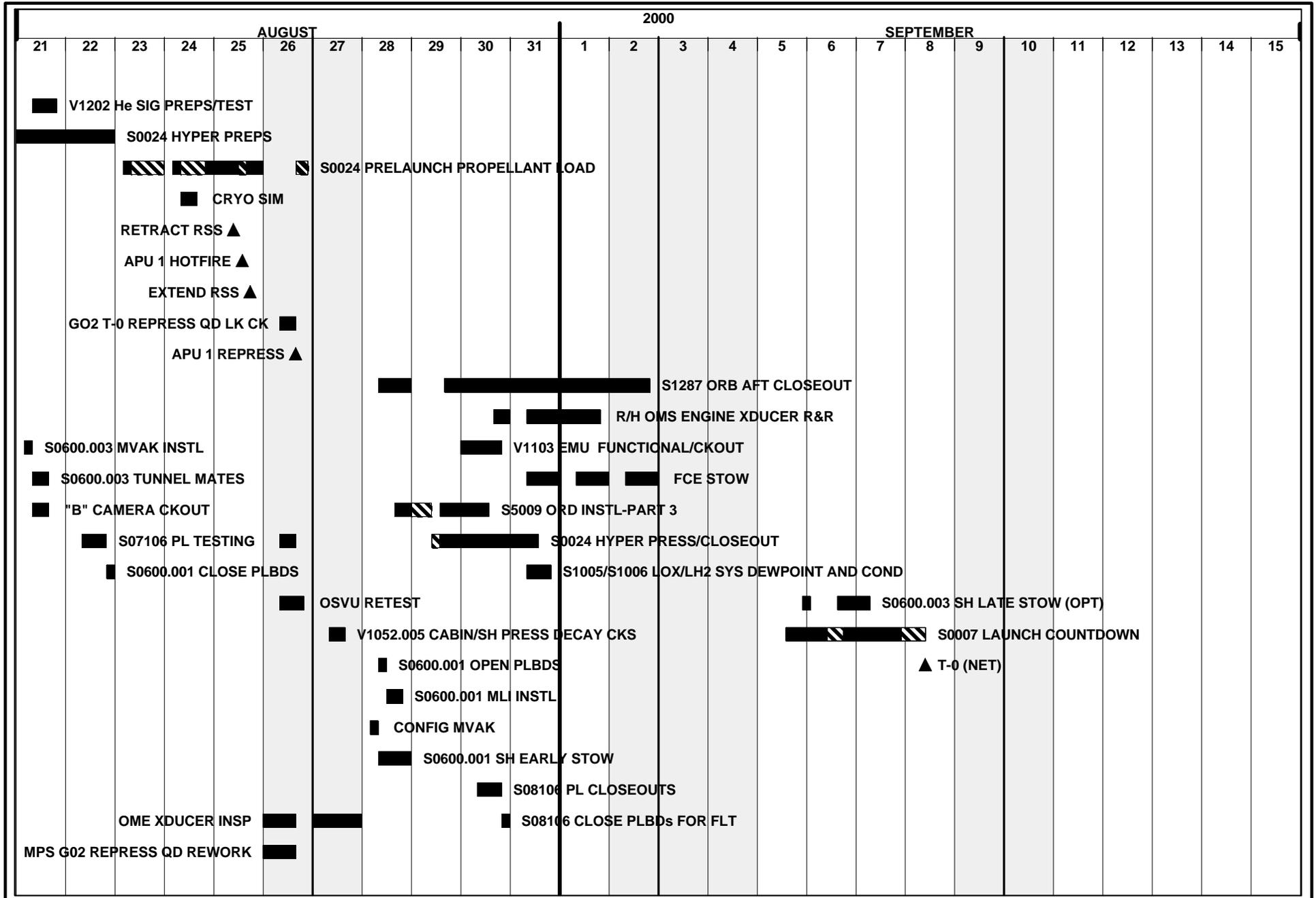
Ground Ops/08-29-00

- Processing Differences - VAB / Pad
 - Planned
 - HB-2 Safe Haven Fit Check
 - Unplanned
 - SSME Anti-Flood Valve Contamination Inspection
 - Hyd Pump Bolt Length Inspection and Replacement
 - LH₂ Manifold MR Tape Repair Installation
 - APU 1 Confidence Run
 - Left OMS Engine Transducer Inspection
 - MPS GO₂ Repress QD Rework

STS-106 / OV-104 Operations Summary

OPR: USA - D. Thompson, INTEG (1-2565)
NASA - K. Manning, PH-M1 (1-9104)

28AUG00 11:45



AGENDA	

- Integrated Operations J. Vevera
- ➡ ● Shuttle Engineering M. Madden
- NASA Managed Activities J. Spaulding
- Summary E. Adamek
D. King

OMRS STATUS	Presenter: Michael Madden
	Organization/Date: Ground Ops/08-29-00

- RCNs in Review
 - Mandatory Flight Element RCNs 2
 - Mandatory GSE RCNs 0
- Open Waiver / Exceptions in Review 1
- Open Time / Life Cycle
 - Actions to be performed before Launch 1
 - Hardware items that will expire between Launch and Launch plus 30 days 0
- Hardware Items not in approved TOPs 0

OMRS STATUS	Presenter: Michael Madden
	Organization/Date: Ground Ops/08-29-00

- RCNs in Review
 - Mandatory Flight Element RCNs

RCN #	System Title	Status
OV13966	V74-RCD RCN Table V74AR0.020 Update	Out of Board
OV139XX	STS-106 PRSD Consumables for Flight	Out of Board

OMRS STATUS	Presenter: Michael Madden
	Organization/Date: Ground Ops/08-29-00

- Open Waivers/Exceptions

Waiver/ Exception #	System	Title	Status
WK039XX	ECL	Potable Water Sample Ordor Test V62AEO.010A	To VECB: 09/01/00

OMRS STATUS	Presenter: Michael Madden
	Organization/Date: Ground Ops/08-29-00

- Open Time/Life Cycle
 - T& C actions to be performed before Launch:

OMRS	System	Description and Remarks	Expiration Date
V61AJ0.141		PP02 Sensor Cal Within 35 days prior to Flt End +2 Days	06/14/00

OMRS STATUS	Presenter: Michael Madden
	Organization/Date: Ground Ops/08-29-00

- Open Time/Life Cycle (Cont'd)
 - Items which will expire between Launch and Launch plus 30 days

OMRS	System	Description and Remarks	Expiration Date
None			

- Hardware items not in approved TOPs
 - None

GROUND LAUNCH SEQUENCER	Presenter: Michael Madden
	Organization/Date: Ground Ops/08-29-00

Ground Launch Sequencer Configuration for STS-106

- GLSDD (KLO-82-0071A) Rev 7, Change V, July 2000

SSID / OMRS	Description and Remarks
• Limit Change	
ECL-10	AV Bay 1,2,3 Delta Press Measurements New LCC limits of 2.50 in H2O per S072379ZH
SSME-02	SSME 1,2,3 MFV Temperature Measurements New LCC limits of -130 deg. F for continuous monitoring per S072379B
SSME-02	SSME 1,2,3 MFV Temperature Measurements New LCC limits of -70 deg F for one time verify at T-75 secs per S072379B

GROUND LAUNCH SEQUENCER CHANGES

Presenter:

Michael Madden

Organization/Date:

Ground Ops/08-29-00

PRCBD#

SSID/OMRS

Description and Remarks

S72379YYR2

FCP-02

PRSD-03

This change added logic to skip the GSE Gnd Pwr Removal at T-50 sec if a failure occurs with a PRSD O2 or H2 Reactant Valve or a Fuel Cell Coolant Pressure prior to T-50 seconds

S72379ZL

BTVC-16

Adds logic to continuously monitor the SRB HPU Primary Pressure OK Indicators to T-31 seconds

ESR 16813

None

Delete the OAA Extend Pilot Reset Valve Commands from the OAA Accumulator Recharge logic

UNEXPLAINED ANOMALIES

Presenter:

Michael Madden

Organization/Date:

Ground Ops/08-29-00

- Deferred -
 - IPR-106V-0010 O2 Tank A Heater Anomaly
(Presented at STS-106 ORMR)

- Open -
 - IPR-106V-0040 ET Separation Camera #1
Blown Fuse

UNEXPLAINED ANOMALIES

Presenter:

Michael Madden

Organization/Date:

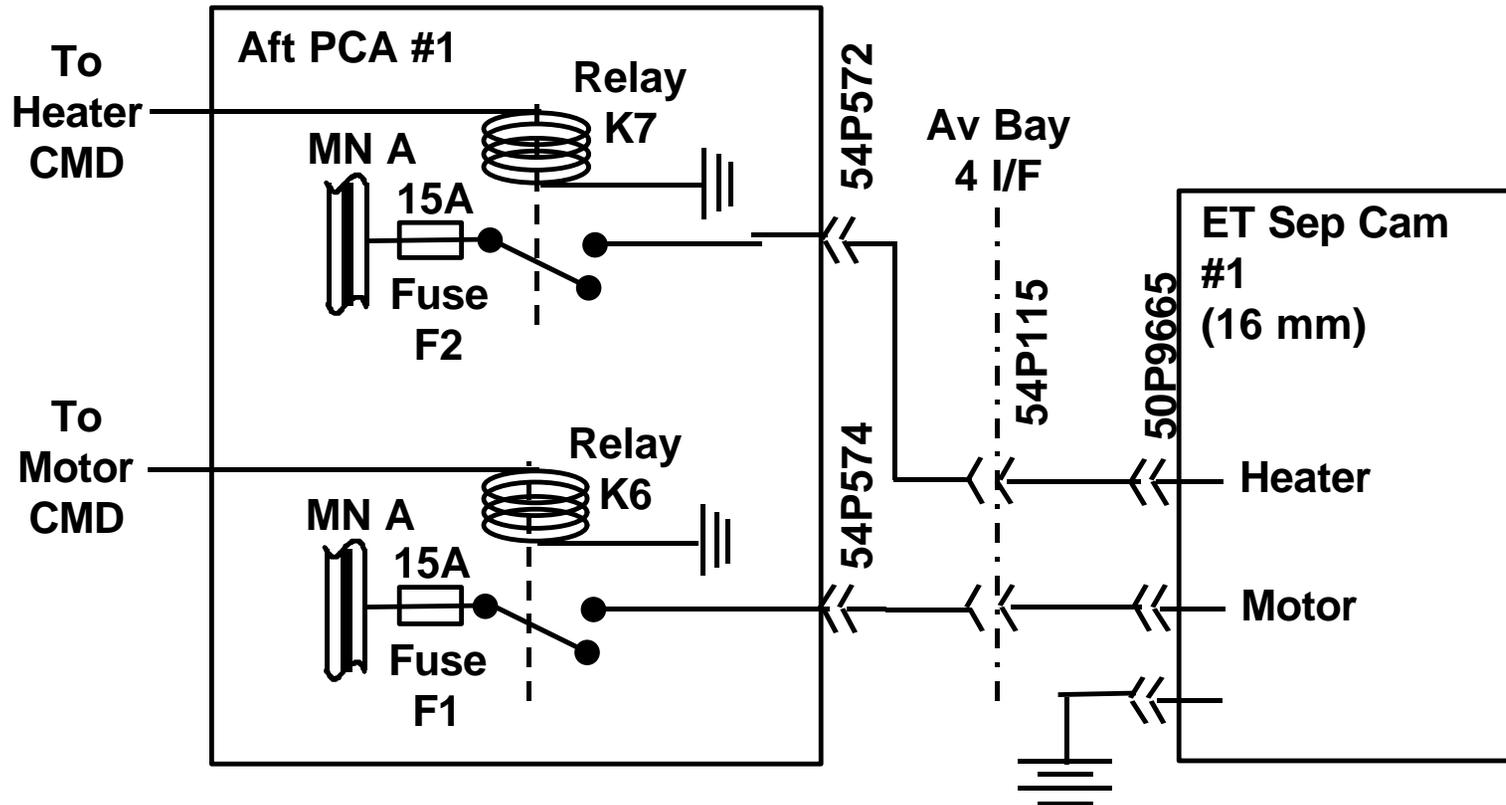
Ground Ops/08-29-00

- Title: ET Separation Camera #1 Blown Fuse
- Observation
 - During the performance of ground turnaround checkout of the ET separation camera #1 (16 mm type) motor power voltage read 0 volts should have been 27.0 to 32 volts dc
 - Subsequently identified that Aft PCA #1 Fuse #1 was OPEN, after replacement of this fuse the circuit functioned nominally
- Concerns
 - Inadvertent shorting of wiring circuits could affect electrical system performance
 - Potential loss of data from ET Separation Camera

UNEXPLAINED ANOMALIES

Presenter:
Michael Madden
Organization/Date:
Ground Ops/08-29-00

ET Separation Camera #1 Simplified Schematic



UNEXPLAINED ANOMALIES

Presenter:

Michael Madden

Organization/Date:

Ground Ops/08-29-00

- Title: ET Separation Camera #1 Blown Fuse (Cont'd)
- Discussion
 - ET Sep Camera circuit is now tested using a GSE Camera Test box in place of the GFE Camera
 - Unit is equipped with a 0.5 Amp fuse for circuit protection
 - Unit is equipped with a 10K Ohms resistor for heater load simulation
 - Ground checkout is performed in the OPF Flow and the actual ET Sep Camera's are not installed until the VAB operations
 - There have been 3 previous occurrences of this type of problem with ET Sep Camera fuses being blown and documented as UA's (2 on OV-102, and 1 on OV-104)
 - Previous Most Probable Causes were related to GSE test configuration decade box type (before Camera Test Unit creation)

UNEXPLAINED ANOMALIES

Presenter:

Michael Madden

Organization/Date:

Ground Ops/08-29-00

- Title: ET Separation Camera #1 Blown Fuse (Cont'd)
- Actions Taken
 - IPR 106V-0040 was taken to document the 0 voltage condition and to perform initial troubleshooting of the problem
 - Gained access to Aft AV Bay 4 to inspect the Fuse #1 of Aft PCA #1
 - Identified Fuse #1 as OPEN, removed and replaced fuse, routed fuse to MAB Lab for failure analysis
 - MAB Lab X-ray and dissection concluded fuse failure was due to current overload
 - Circuit retested at 29.2 Vdc when energized after replacement of fuse #1

UNEXPLAINED ANOMALIES

Presenter:

Michael Madden

Organization/Date:

Ground Ops/08-29-00

- Title: ET Separation Camera #1 Blown Fuse (Cont'd)
- Actions Taken (Cont'd)
 - Continuity, Isolation and Hi-Pot Testing was performed on the vehicle portion of this circuit from the camera I/F connector to the Aft PCA #1
 - No discrepancies were identified with any of the vehicle wiring
 - End to End test performed with different S/N Camera
 - Data from JSC Camera Troubleshooting was as follows
 - Camera did not take pictures during STS-101 Flight
 - Inspection of camera revealed no evidence of film jams or film chips
 - Camera was operated with remaining roll of film and another new roll of film with no anomalies

UNEXPLAINED ANOMALIES

Presenter:

Michael Madden

Organization/Date:

Ground Ops/08-29-00

- Title: ET Separation Camera #1 Blown Fuse (Cont'd)
- Actions Taken (Cont'd)
 - Data from JSC Camera Troubleshooting was as follows (Cont'd)
 - Camera motor operating current was 2.92 amps at 28 Vdc (Nominal)
 - Camera current at startup was measured greater than 15 amps
 - Max current was 18 Amps for less than 20 ms at startup
 - Fuse Spec and design allows for up to 70A for < 750 ms
 - Heater circuit was checked and verified operational
 - All three ET Sep Cameras were checked and tested normally

UNEXPLAINED ANOMALIES

Presenter:

Michael Madden

Organization/Date:

Ground Ops/08-29-00

- Title: ET Separation Camera #1 Blown Fuse (Cont'd)

- Actions Taken (Cont'd)
 - STS-106 Camera Troubleshooting/Retest/Verification
 - Next flight camera was operated for 6 seconds with no anomalies
 - Heater circuit was checked and verified operational

- Possible Causes
 - **Wiring – Connectors**
 - Intermittent short in the power path due to wiring or connector/pin contact issue
 - Ruled out by wire inspection (80%), wiring isolation and hi-pot testing post flight
 - Intermittent short within A-PCA-1 from the output of K6 Relay to vehicle ground via the LRU
 - Ruled out by good post flight retest and no history of this failure type in program

UNEXPLAINED ANOMALIES

Presenter:

Michael Madden

Organization/Date:

Ground Ops/08-29-00

- Title: ET Separation Camera #1 Blown Fuse (Cont'd)
- Possible Causes (Cont'd)
 - **Camera Malfunction**
 - Camera Heater Failure – freezing the motor mechanism and then causing the fuse to be subjected to a current overload and open
 - Ruled out by the lack of film pieces/debris in camera post flight
 - Intermittent, High Current – Rapid Duration Short inside Camera Motor
 - Undetectable duration spike less than 20 ms
 - Vehicle current data sample rate is 50 times per second
 - Event is consistent with MAB Lab Fuse failure analysis
 - Melted conductor in narrow areas

UNEXPLAINED ANOMALIES

Presenter:

Michael Madden

Organization/Date:

Ground Ops/08-29-00

- Title: ET Separation Camera #1 Blown Fuse (Cont'd)

- Possible Causes (Cont'd)
 - **Environmental Conditions**
 - Environmental conditions from repeated thermal cycles (CRYO Tanking) caused the camera film to stick/bind, resulting in increased current at camera startup and failure of the fuse
 - Ruled out by design, de-rating of fuse, and lack of film debris in camera post flight
 - **In-Rush Startup Current**
 - Nominal In-Rush start up current of 18 Amps degraded fuse over several cycles/missions
 - Ruled out by design and de-rating of fuse size
 - **Test Failure**
 - Fuse opened during last flow camera checkout due to overload
 - Ruled out by improved GSE camera test unit/set-up with 0.5 amp fuse

UNEXPLAINED ANOMALIES

Presenter:

Michael Madden

Organization/Date:

Ground Ops/08-29-00

- Title: ET Separation Camera #1 Blown Fuse (Cont'd)
- Most Probable Cause
 - **Camera Malfunction**
 - Intermittent, High Current – Rapid Duration Short inside Camera Motor
 - Some graphite debris or other conductor within camera motor provided a momentary short of power to ground at start-up which caused an electrical overload of the 15 amp fuse
 - Short condition was of sufficient magnitude to eliminate itself (vaporize) and was not found during post flight troubleshooting
 - Current Spike was not observed in Vehicle Data due to the event duration being less than 20 ms

UNEXPLAINED ANOMALIES

Presenter:

Michael Madden

Organization/Date:

Ground Ops/08-29-00

- Title: ET Separation Camera #1 Blown Fuse (Cont'd)
- Risk Assessment
 - No added risk to Mission success or Flight and Crew safety
- Flight Rationale
 - No electrical or mechanical discrepancies have been identified in either the vehicle hardware or the GFE Camera
 - EPD engineering has confirmed that another fuse failure in flight would not effect the function of the electrical systems
 - Loss of data from the ET Sep camera is considered a Criticality 3 failure
 - The camera and vehicle circuit have been successfully retested and are ready for flight

ENGINEERING TOPIC**Presenter:****Michael Madden****Organization/Date:****Ground Ops/08-29-00**

- Title: OV-104 Wire Crimp Concerns
- Observation
 - A wire crimping tool (NB-CS-20) certified to crimp 20 AWG wire to connector sockets was used with 22 AWG wire. This was not the tool specified in the procedure and subsequently sample crimps using this tool with 22 AWG wire failed a pull test at 10 pounds vs. a minimum allowable of 12 pounds
- Concerns
 - Incorrect crimping tool usage could result in over crimped or under crimped wire to socket connections, which may pull apart or break

ENGINEERING TOPIC**Presenter:****Michael Madden****Organization/Date:****Ground Ops/08-29-00**

- Title: OV-104 Wire Crimp Concerns (Cont'd)
- Discussion
 - Due to a large backlog of unavailable crimp tools out to calibration lab, a Process Improvement Team developed the following process. The NDE QC Group receives the actual crimpers and work instructions after each crimp wiring job
 - Duplicate sample crimps are made and verified to meet the pull test criteria
 - Problem Reports are issued to correct discrepant crimps or work instructions
 - This problem condition was identified by this new process control measure

ENGINEERING TOPIC**Presenter:****Michael Madden****Organization/Date:****Ground Ops/08-29-00**

- Title: OV-104 Wire Crimp Concerns (Cont'd)
- Discussion (Cont'd)
 - NSLD process has different controls and only two escapes were found
 - There are no issues with SRB, ET, SSME or GSE
 - Each of these elements work to similar process specifications that utilize sample crimps and pull tests for each job worked
 - Palmdale process was reviewed in the same manner as the KSC crimping work instructions

ENGINEERING TOPIC**Presenter:****Michael Madden****Organization/Date:****Ground Ops/08-29-00**

- Title: OV-104 Wire Crimp Concerns (Cont'd)

- Actions Taken
 - A review of approximately 600 wiring work instructions for Flight 21 of OV-104 were reviewed for this crimp tool concern (1997 to present for KSC work effort)
 - 44 potential incorrect crimp tool uses were identified
 - A review of approximately 435 Palmdale wiring work instructions for Flight 21 of OV-104 is complete
 - 66 potential incorrect crimp tool uses were identified
 - NSLD reviewed crimping records and identified two incorrect tool uses

ENGINEERING TOPIC**Presenter:****Michael Madden****Organization/Date:****Ground Ops/08-29-00**

- Title: OV-104 Wire Crimp Concerns (Cont'd)

- Actions Taken (Cont'd)
 - Corrective actions taken to reduce these types of process escapes are as follows:
 - Training is emphasizing the correct recording of tool 'Z' Numbers
 - Shop Management is addressing crimper issues at tailgate meetings
 - Quality Management is emphasizing correct tool verification and workmanship

 - The newly added independent crimp process verifications by the NDE QC organization is the process control measure that will identify and eliminate this type of escape should these other measures fail

ENGINEERING TOPIC**Presenter:****Michael Madden****Organization/Date:****Ground Ops/08-29-00**

- Title: OV-104 Wire Crimp Concerns (Cont'd)
- Actions Taken (Cont'd)
 - A test plan was developed to duplicate the incorrect tool, terminal, and wire size and then to perform a series of 30 sample pull test on the errant combinations for a total of approx 2400 pull test
 - A total of 112 possible errant tool crimp combinations have been identified in the OV-104 documentation and data review among all three wiring work locations
 - The errant combinations and pull test data can be categorized into 4 methods of acceptance for flight

ENGINEERING TOPIC**Presenter:****Michael Madden****Organization/Date:****Ground Ops/08-29-00**

- Title: OV-104 Wire Crimp Concerns (Cont'd)

- Acceptance Method 1
 - The testing has validated the errant combination
 - The pull testing data for the errant combination meets or exceeds specification for the wire size crimp
 - MR accept these combinations “AS-IS” for unrestricted use

- Acceptance Method 2
 - The testing has not validated the errant combination
 - Rework these combinations to print configuration

ENGINEERING TOPIC**Presenter:****Michael Madden****Organization/Date:****Ground Ops/08-29-00**

- Title: OV-104 Wire Crimp Concerns (Cont'd)
- Acceptance Method 3
 - The testing has not validated the errant combination
 - Some test pull combinations were more than 50% of specification but less than 100% while the remaining tests exceeded specification
 - MR accept these combinations “AS-IS” for unrestricted use

ENGINEERING TOPIC**Presenter:****Michael Madden****Organization/Date:****Ground Ops/08-29-00**

- Title: OV-104 Wire Crimp Concerns (Cont'd)

- Acceptance Method 4 –Unknown Conditions
 - Documentation/Metrology Recording Error
 - The physical combination could not be assembled as recorded, and no pull testing could be performed
 - The wire would not go into the crimp (wire too large)
 - The crimper tool would not contact the crimp (tool too large)
 - Crimping operations performed from original build to 1997
 - Crimping data was reviewed from 1997 to present
 - This review has determined that errors in the crimping process could be present back to the original build

ENGINEERING TOPIC**Presenter:****Michael Madden****Organization/Date:****Ground Ops/08-29-00**

- Title: OV-104 Wire Crimp Concerns (Cont'd)
- Acceptance Method 4 –Unknown Conditions (Cont'd)
 - Acceptance rationale for these unknown combinations
 - Previously flown hardware has performed without anomaly
 - Analytical test data performed by sampling incorrect tool combinations has revealed that the majority of crimps surpass specification values even when performed incorrectly
 - Wire segments are restrained (clamps/spot-ties/heat shrink)
 - Wiring has passed all functional and OMRSD tests
 - Training/Certification of technicians and quality performing wire crimps results in a pull test being performed at installation to ensure successful crimp assembly
 - Circuits are current limit protected

ENGINEERING TOPIC	Presenter: Michael Madden
	Organization/Date: Ground Ops/08-29-00

OV-104 Wire Crimp Errant Combination Summary

Acceptance Method	KSC	Palmdale	NSLD	Total
1 - Pull Test Passed (MR)	34	36	2	72
2 - Pull Test Failed (RTP)	2	0	0	2
3 - Marginal Pull Test (MR)	0	4	0	4
Total Errant Combinations	36	40	2	78
4 – Unknown/Not Credible Combinations	8	26	0	34

ENGINEERING TOPIC**Presenter:****Michael Madden****Organization/Date:****Ground Ops/08-29-00**

- Risk Assessment
 - No additional risk to mission success or flight and crew safety
- Flight Rationale
 - Errant Crimp conditions have been validated by pull test
 - Failed pull test combinations have been reworked or “MR” accepted
 - Positive testing of all crimp configuration has been established
- OV-104/STS-106 is ready to fly

AGENDA	

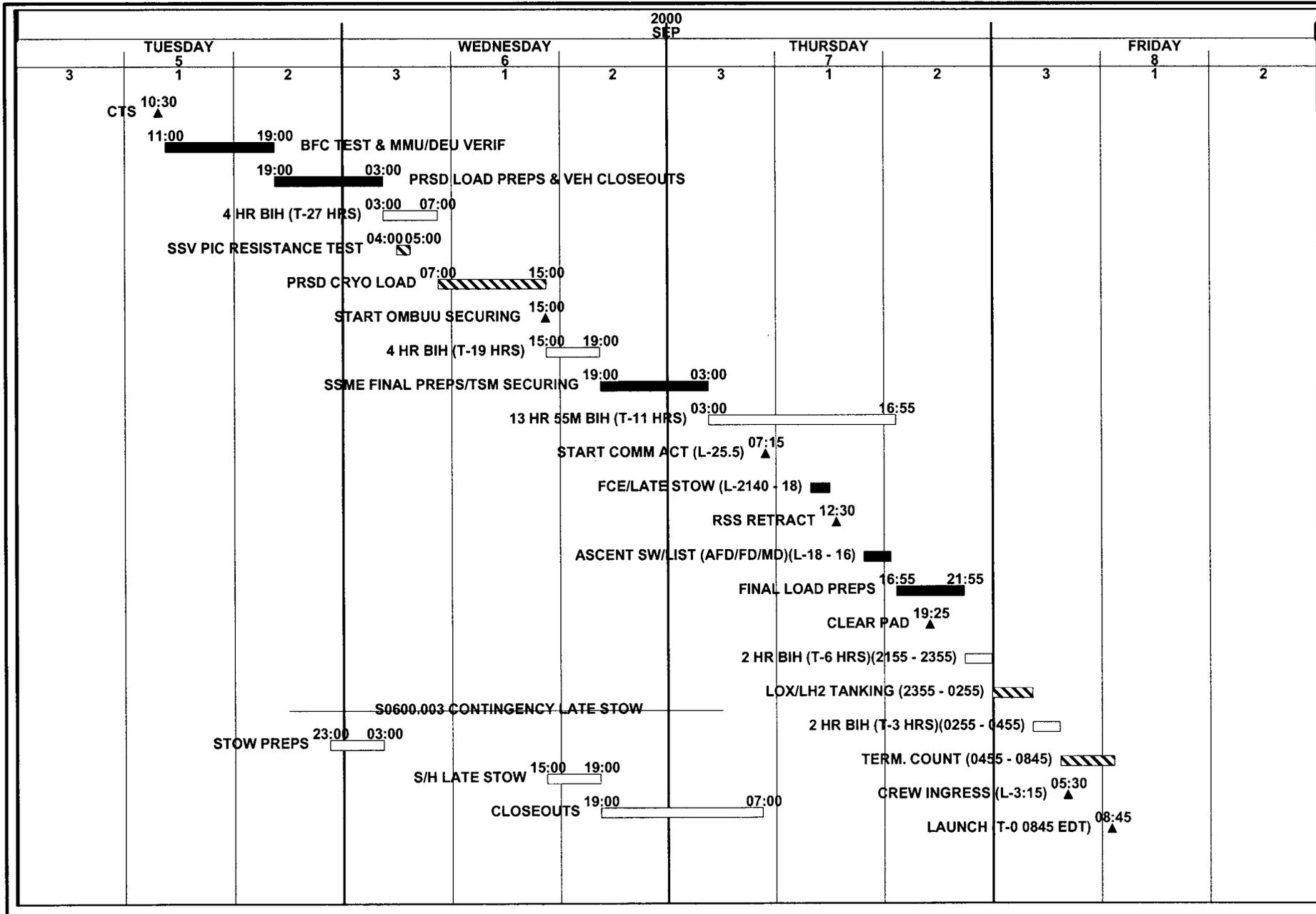
- Integrated Operations J. Vevera
- Shuttle Engineering M. Madden
- ➡ ● NASA Managed Activities J. Spaulding
- Summary E. Adamek
D. King

STS-106 / OV-104

Launch Countdown Summary

OPF: J. Spaulding (1-9306)

25AUG00 13:16



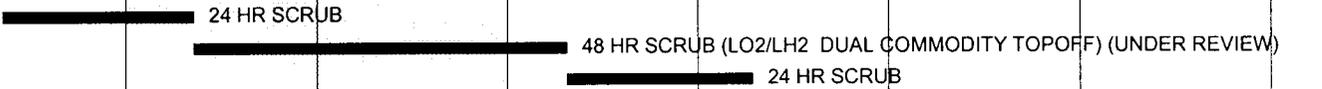
NOTE:
Actual scrub turnaround timelines will be determined
realtime based on specific conditions encountered.

STS-106

LAUNCH COUNTDOWN TURNAROUND OPTIONS

OPR: J. SPAULDING 1-9306

25AUG00 13:27

		6	7	8	9	10	11	12	13	14	15
		 S0007 LAUNCH COUNTDOWN ▲ T-0									
		General notes: - No attempts on FD4 rendezvous launch dates - No Middeck Experiment/Latestow constraints - No Near-term Range Conflicts - No P/L Turnaround Constraints									
BASILINE		RENDEZVOUS DAY			▲ FD4		▲ FD4		▲ LH2		▲ FD4
CONSTRAINTS		PRSD HOLD TIME									
Baseline notes: - Nominal mission length (No add'l docked days) - No add'l FD3 opportunities - PRSD hold times LH2 4 days LO2 9 days		 48 HR SCRUB 48 HR SCRUB (LH2 SINGLE COMMODITY TOPOFF)									
LAUNCH ATTEMPTS			▲ 1			▲ 2		▲ 3		▲ 4	
OPTION 1:		RENDEZVOUS DAY			▲ FD4				▲ FD4		
CONSTRAINTS		PRSD HOLD TIME			▲ LO2 ▲ LH2			▲ LO2 ▲ LH2			
Option 1 notes: - Add'l FD3 opportunities - Progress Re-boost - PRSD hold times LH2 1 day LO2 1 day		 24 HR SCRUB 72 HR SCRUB (LO2/LH2 DUAL COMMODITY TOPOFF)									
LAUNCH ATTEMPTS			▲ 1		▲ 2			▲ 3			▲ 4
OPTION 2:		RENDEZVOUS DAY			▲ FD4				▲ FD4		
CONSTRAINTS		PRSD HOLD TIME			▲ LO2 ▲ LH2			▲ LH2 ▲ LO2			
Option 2 notes: - Add'l FD3 opportunities - Progress Re-boost - PRSD hold times LH2 1 day LO2 1 day - 48 Hr dual commodity toloff capability is under review		 24 HR SCRUB 48 HR SCRUB (LO2/LH2 DUAL COMMODITY TOPOFF) (UNDER REVIEW) 72 HR SCRUB (LO2/LH2 DUAL COMMODITY TOPOFF)									
LAUNCH ATTEMPTS			▲ 1		▲ 2		▲ 3	▲ 4			▲ 5

LANDING OPERATIONS STATUS

Presenter:

Jeff Spaulding

Organization/Date:

Launch and Landing/08-25-00

- **TAL Site Status**
 - Prime:
 - Zaragoza Deploys at L-7 Days – 8/1/00
 - Alternates:
 - Ben Guerir Deploys at L-7 Days – 8/1/00
 - Moron Deploys at L-6 Days – 8/2/00
- **AOA Status:**
 - Prime:
 - KSC Full Convoy
 - Alternate:
 - WSSH Deploys at L-2 Days – Mini Convoy
- **Mission Support:**
 - DFRC/EDW Deploys at L-2 Days – Mini Convoy
 - KSC Orbiter Power Up Team as Required
 - WSSH Mini Convoy
- **EOM Support:**
 - Prime: KSC
 - Alternates:
 - DFRC/EDW Mini Convoy – Extended Power up to MDD
 - WSSH Mini Convoy



<h1>AGENDA</h1>	

- Integrated Operations J. Vevera
- Shuttle Engineering M. Madden
- NASA Managed Activities J. Spaulding
- ➡ ● Summary E. Adamek
D. King

READINESS STATEMENT

Presenter:

Ed Adamek

Organization/Date:

Ground Ops/08-29-00

Subject to completion of planned work and identified constraints, USA Ground Operations is ready to proceed with Launch Operations

LAUNCH AND LANDING SUMMARY

Presenter:
Dave King

Organization/Date:
Shuttle Processing/08-29-00

- STS-106 Readiness Statement
 - Center-wide reorganization May, 2000
 - Updated CoFR and Surveillance processes to reflect new organizations and responsibilities. Thorough review of new procedures completed
 - Surveillance indicate stable and capable launch preparation processes
 - Reviews of NASA-managed activities and out-of-family issues completed
 - Launch Team training goals and objectives accomplished
 - Planning for Launch Countdown, Landing and Recovery on schedule



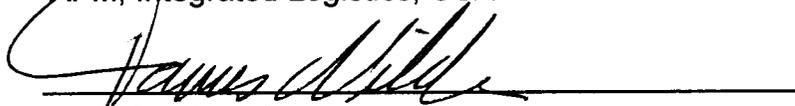
Kennedy Space Center Shuttle Processing & Supporting Organizations

STS-106

This is to certify that appropriate CoFR items from NSTS 08117, Appendix H and I, Flight Preparation Process Plan, have been reviewed and dispositioned. Subject to completion of planned work and resolution of any identified constraints, KSC Shuttle Processing and Supporting Organizations are ready to support Launch Operations.

 8/28/00

Charlie W. Murphy
APM, Integrated Logistics, USA



Paul E. Adamek
APM, Ground Operations, USA

 8-28-00

David A. King
Director of Shuttle Processing, NASA

STS-106
FLIGHT READINESS REVIEW
BACK-UP

August 29, 2000

Ground Operations

GROUND LAUNCH SEQUENCER	Presenter: Michael Madden
	Organization/Date: Ground Ops/08-29-00

Ground Launch Sequencer Configuration for STS-106

- GLSDD (KLO-82-0071A) Rev 7, Change V, July 2000

SSID / OMRS	Description and Remarks
• Mask	
ECL-40	FCL 1 & 2 Payload Heat Exchanger Flow Rate (FPV will be in the Interchanger position for Launch)
PAY-02	Payload Auxiliary RPC A – ON Payload Auxiliary RPC B - ON (No payload power required for Launch)
PAY-03	Payload Aft Main B Power – ON Payload Aft Main C Power – ON (No payload power required for Launch)

GROUND LAUNCH SEQUENCER	Presenter: Michael Madden
	Organization/Date: Ground Ops/08-29-00

Ground Launch Sequencer Configuration for STS-106

- GLSDD (KLO-82-0071A) Rev 7, Change V, July 2000

SSID / OMRS	Description and Remarks
● Bypass	
None	Photo Camera Sequencer Start no longer required. Its replacement, the Photo Optical Control System does not require an LPS signal
None	Bypass the setting of the GCU 1 Sel ind Not required for 1203 GCUs
None	GCDKTIM4E – Timer #4. This timer was used to countdown the last 31 sec of the count. NTDs no longer require use of this timer

LOST ITEM PROBLEM REPORTS

Presenter:

Michael Madden

Organization/Date:

Ground Ops/08-29-00

Lost Items Not Found (5 Total)

Summary/Conclusion for all LAF PR's

- A thorough search of each area was unsuccessful in finding/retrieving the lost items
- System Engineering evaluations have concluded no adverse effect on Orbiter system operations

Crew Module

- PR -LAF-4-22-0476: Lost T-handle and pip pin ball from broken hatch hinge release pins are lost and missing
 - Weight: 2 grams total for non accounted piece parts
 - Size: 1.5" X 1/4" X 3.3" Long (Handle/Pin) & 0.111" Sphere (Ball)
 - Location: External Airlock

LOST ITEM PROBLEM REPORTS

Presenter:

Michael Madden

Organization/Date:

Ground Ops/08-29-00

Crew Module (Cont'd)

- PR -LAF-4-22-0481: Spacer was lost during closeout shelf removal in Av Bay 3B (P/N V070-334151-001)
 - Weight: 2.08 grams
 - Size: 0.37" X 0.56" X 0.13"
 - Location: AV Bay 3B, Mid Deck Floor, ECLSS Bay
- PR -LAF-4-22-0483: Snaplink P/N SLD33103465-301 was identified missing from post-flight destow accounting at JSC
 - Weight: X.XX grams
 - Size: TBD
 - Location: C/M General

LOST ITEM PROBLEM REPORTS

Presenter:

Michael Madden

Organization/Date:

Ground Ops/08-29-00

All Sections

- PR -LAF-4-22-0480: A 700 – 1600 In-Lb torque wrench is unaccounted for from the OPF Bay 3 cabinet
(P/N 16003M – Cal Z# Y03408)
 - Weight: 950 grams
 - Size: 17.0” Long X 1.0” Diameter.
 - Location: Not believed to be in the Orbiter, never logged in tool logs, no documents reviewed use this specific torque wrench

Note: Documentation review does not indicate this tool was ever inside of the vehicle this flow, the tool is of sufficient size to have been found if it were in the vehicle at each area closeout, based on these details, the tool is not believed to be inside of the flight element

LOST ITEM PROBLEM REPORTS

Presenter:

Michael Madden

Organization/Date:

Ground Ops/08-29-00

Midbody

- PR -LAF-4-22-0482: Dropped a small piece of gray epoxy edge seal material from the Ku Band Antenna dish repair area
 - Weight: ~1.0 Grams
 - Size: 1.0" Long X ¾" X ¼" Thick
 - Location: Below Ku Band antenna in Mid bay 1 and 2

Note: Initial Search with Payload Bay Door opening at the PAD did not find the item, searching will continue with Midbody Operations

<p>PAD B MODIFICATIONS Window from 2/12/00 through 7/31/00</p>	<p>Presenter: Michael Madden</p>
	<p>Organization/Date: Ground Ops/08-29-00</p>

<u>MODIFICATIONS</u>	<u>STATUS</u>
• Breaker Refurbishment (SGS)	Complete
• FRCS Access (K13213)	Complete
• ET/IT Heater (0.2729SP)	Complete
• Oxidizer/Fuel FDS Annin Valve Removal (K16581)	Complete
• PGHM Drive Upgrades (KSC-158)	Complete
• HIMS II Mod	Complete
• Payload Cable Installations (M02561)	Complete
• Firex Catacomb Mods (K16745)	Complete
• Replace USS 1031/1032 Tie Cable	Complete
• 9099 Interface Siding (PCN 97146)	Complete
• Purge Manifold Mod (K16332)	Complete
• Firex Perimeter Demolition (K16224)	Complete
• Refurb RSS Truck Drives	Complete

PAD B MODIFICATIONS (CONT'D)	Presenter: Michael Madden
	Organization/Date: Ground Ops/08-29-00

<u>MODIFICATION</u>	<u>STATUS</u>
• Restore Pad Surface and Slope (Partial) (PCN 96824)	Complete
• Comp Air to Perimeter Firex Controls (CO-510)	Complete
• ECS Moisture Content (K16432)	Complete
• Refurb Side Flame Deflector Trucks (K16647)	Complete
• MLP Access Mod (K12555)	Complete
• Safety Tie Offs (K15612/OASIS Item) (Partial)	Complete
• GOX Vent Camera (0.3179SP) (Partial)	Complete
• Modify Hinge Column Crossover (PCN 96683) (Partial)	Complete
• CWLISS System Upgrade (K16390)	Complete

PAD B MODIFICATIONS (CONT'D)**Presenter:****Michael Madden****Organization/Date:****Ground Ops/08-29-00****MODIFICATION****STATUS**

- Replace OX/Fuel Farm Roofs (SGS) Complete
- Refurb Main Flame Deflector Complete
- ET Camera Mod (S071219N) (Partial) Complete
- Remove/Cap Saturn Escape Chute Complete
- LOX/LH2 Housing Upgrade (PCN 97056) (Partial) Complete
- Repair OAA/ET Structure Attach Points Complete
- Add Hinge Column Ramp and Gate (PCN 96683) Complete